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**ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)**  
**ORGANISATION OF ISLAMIC COOPERATION (OIC)**  
**Department of Computer Science and Engineering (CSE)**

**MID SEMESTER EXAMINATION**  
**DURATION: 1 HOUR 30 MINUTES**

**WINTER SEMESTER, 2022-2023**  
**FULL MARKS: 75**

**CSE 4581: Web Programming**

**Programmable calculators are not allowed. Do not write anything on the question paper.**  
 Answer all 3 (three) questions. Figures in the right margin indicate full marks of questions whereas corresponding CO and PO are written within parentheses.

1. Consider the HTML Code segment shown in Code Snippet 1 and answer the following questions.

```

1 <body>
2   <style>
3     #caption{
4       width: 20px;
5       height: 30px;
6       margin: 10px;
7       margin-top: 20px;
8       border: 3px 5px solid;
9       padding: 5px 7px 8px;
10      outline: 5px;
11    }
12  </style>
13  <caption id="caption">Program: CSE and TE</caption>
14  <nav>
15    <h4>List of courses</h4>
16    <ul>
17      <li class="course">Web Programming</li>
18      <li> Math and Logic
19        <ol>
20          <li class="course">Data Structure</li>
21          <li class="course">Linear Algebra</li>
22        </ol>
23      </li>
24      <li class="course" name="course">Software Analytics</li>
25    </ul>
26  </nav>
27  <footer>..Many more</footer>
28 </body>
  
```

**Code Snippet 1:** Body part of an HTML code for Question 1.

- a) Differentiate among `id`, `class`, and `name` attributes in HTML? Explain in detail with the help of Code Snippet 1. 5  
(CO1)  
(PO1)
- b) Draw the Document Object Model tree based on Code Snippet 1 that corresponds to the hierarchy of the body HTML (ignore the text, and tag attributes - just refer to tag names). 10  
(CO2)  
(PO2)
- c) Draw the labeled diagram of the `caption` tag of `id#caption` given in the Code Snippet 1 and calculate the area of the box model. 10  
(CO2)  
(PO2)

2. Consider the HTML code given in Code Snippet 2 and answer the following questions.

```
1 <body>
2   <section>
3     <a class="highlight" href="css.com">CSS Tutorial</a>
4     <aside>official site for CSS</aside>
5   </section>
6   <section>
7     <p>Welcome to the second section.</p>
8     <aside style="display: none;">official site for CSS</aside>
9   </section>
10  <section>
11    <p class="lang_sec">This section summarizes the benefits of
12      learning new languages.</p>
13    <p class="com_lang">Help to <b>communicate</b> with a broader
14      range of people.</p>
15    <p class="job_lang">Increase <b>job</b> opportunities.</p>
16    <p class="lit_lang">Explore <b>literature</b>, films, and music
17      from different cultures.</p>
18  </section>
19 </body>
```

Code Snippet 2: Body part of an HTML code for Question 2.

- a) Explain the differences between Relative Positioning and Absolute Positioning in CSS. 5 (CO1) (PO1)
- b) Discuss CSS selectors with the help of Code Snippet 2. 10 (CO2) (PO2)
- c) Write the necessary CSS code to satisfy the following conditions: 5 × 2 (CO1) (PO2)
- The first letter of every *section* will be capitalized.
  - When a user hovers 'CSS Tutorial' link, the *font-size* and *color* will be changed, and the *aside* element will be shown.
  - The initial color of every *link* will be *blue*. When the *link* has been visited, the *color* will be *red*.
  - The text of every *paragraph* having the attribute value ends with class 'lang' will be *italic*.
  - The *background* of the first child of every *paragraph* will be *yellow*.
3. a) What are the differences and scopes among *let*, *const*, and *var* when declaring variables in JavaScript? 5 (CO1) (PO1)
- b) What are DOM nodes in the context of the Document Object Model? How can you traverse and manipulate DOM nodes efficiently? 10 (CO2) (PO1)
- c) Compare Callbacks, Promises, and Async/Await in JavaScript. When would you choose one approach over the others? 10 (CO1) (PO1)